Heaviness in a Verb-final Language: Evidence from Persian

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Introduction

- Is the **short-before-long principle** universal?
  - → Heavy constituents require more processing resources (e.g. Arnold *et al*, 2000 ; Stallings *et al*, 1998)
  - → Costly constituents tend to be postponed
- Meanwhile, Hawkins's *Early Immediate Constituent (EIC)* principles predicts opposite tendencies
  - → For head-initial and head-final languages (Hawkins, 1990 a.o.)
  - → **Long-before-short** in head-final languages
  - → Confirmed for Japanese by corpus and experimental data (Hawkins, 1994 ; Yamashita & Chang, 2001)

EIC principle in Japanese

[Mary-ga] [kinoo John- ga kekkonsi-ta to] it-ta
Mary-NOM yesterday John-NOM married that said
Mary said that John got married yesterday.

[Mary-ga]	[kinoo	John- ga	kekkonsi-ta	to]	it-ta
1	2	3	4	5	6

[kinoo	John- ga	kekkonsi-ta	to]	[Mary-ga]	it-ta
			1	2	3 ✓

DO IO or IO DO ?

PP > NP (by 2 words)

[NP]	[NP	P]	V
1	2-3	4	5

[NP	P]	[NP]	V
	1	2	3 ✓

Persian: Essential Properties

- Mixed head direction:
  - Head-final in verbal domain (SOV)
  - Head-initial elsewhere
  - e.g. Det N Mod, Prep NP, Comp P
- EIC does not (always) work for Persian:
  - ➢ NP PP V

NP	[Prep	[NP]	V
1	2	3-4	5

PP > NP (by 2 words)

  - ➢ PP NP V

[Prep	[NP]]	NP	V
1	2-3	4	5

No preferential order is predicted by the EIC principle

- Canonical word order is SOV
- But variation is possible (SVO, VSO, etc.)
  - Depending on register, information structure, prosody, etc.
  - e.g. Goal arguments are post-verbal in oral/informal register
- Clausal complements are strictly post-verbal

- Differential Object Marking (DOM)
  - A definite and/or specific DO is always marked with ***=rā*** (cf. ex 4)
  - An indefinite non-specific DO is not marked (cf. ex 1 – 3)

Object of this study:
Preferential order between the DO and the IO in the preverbal domain

- Most prominent hypothesis for complement ordering is the DOM criterion
  - ➢ Marked DOs can be separated from the verb → NP PP V order
  - ➢ Unmarked DOs should be adjacent to the verb → PP NP V order

(Karimi, 2005 a.o.)

- Part of this hypothesis has been shown not to hold in corpus data

(Faghiri & Samvelian, 2013)

Corpus Study

Corpus:
- Bijankhan corpus : 2,6m tokens, from newspapers, annotated for POS, freely available
- Verbs were lemmatized and potentially ditransitive verbs were extracted (42k tokens, 122 types)

Dataset (908 tokens, 82 lemmas):

Selection of sentences out of
1. A random sample of 2000 tokens: 541 occ.
2. All instances of verbs 'to send' and 'to pour' (low frequency)
3. Random samples of verbs 'to give' and 'to take' (very high frequency)

Mixed-effect logistic regression
- Dependent variable: Order (NP PP V = 1)
- Fixed effects:
  1. DO type
  2. Relative length (nb of words): log(NP) – log(PP)
- Random effect: Verb lemma

Average preference of 59% for NP-PP-V order

4 DO types (based on preliminary observations)

→ DO type determines the relative order in 87% of cases

Bare

(1) Maryam be Nima **ketāb** dād
Maryam to Nima book gave
'Maryam gave a book/books to Nima.'

Bare-Modified

(2) Maryam be Nima **ketāb=e tārix** dād
Maryam to Nima book=EZ* history gave
'Maryam gave a history book/history books to Nima.'

Indefinite

(3) Maryam **čand ketāb=e qadimi** be Nima dād
Maryam some book=EZ old to Nima gave
'Maryam gave some old books to Nima.'

Marked (= *rā*)

(4) Maryam **in ketāb=rā** be Nima dād
Maryam this book=DOM to Nima gave
'Maryam gave this book to Nima.'

* EZ stands for the *Ezafe*, an enclitic which links the head noun to its modifiers and to the possessor NP

	Bare		Bare-Modified		Indefinite		Marked	
NP PP V	43	(16%)	23	(34%)	112	**(77%)**	404	**(95%)**
PP NP V	228	**(84%)**	44	**(66%)**	33	(23%)	21	(5%)
Total	271		67		145		425	

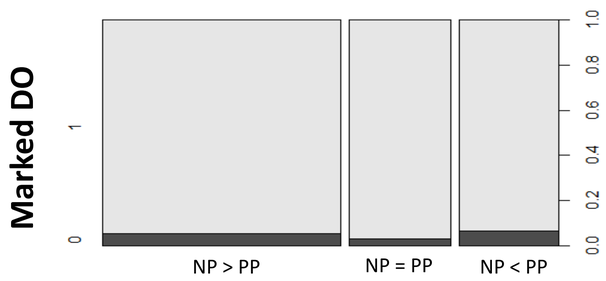
Relative length is irrelevant for Bare DOs
NP ≤ PP in all cases

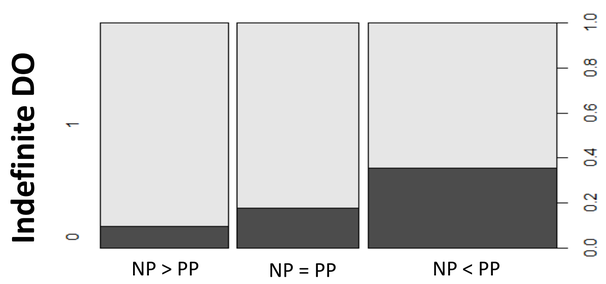
The relative-length plays a role in the choice of the relative order in the case of these DO types

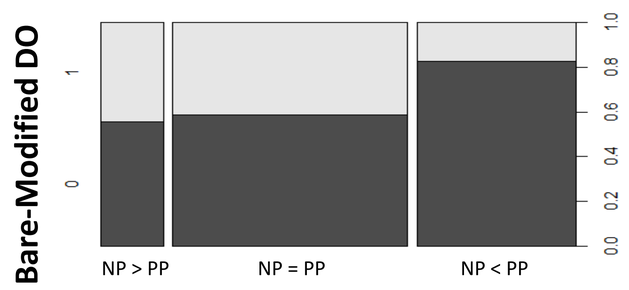
The Relative Length

Beyond the strong effect of DO type, **relative length** shows a significant effect (p-value < 0.001) corresponding to the **long-before-short** tendency

Shorter NPs prefer the PP NP V order significantly more often







1 : NP PP V
0 : PP NP V

→ **Persian behaves like Japanese, confirming the long-before-short principle in OV languages**

Discussion and Conclusions

- The short-before-long principle is not universal:
  Not only Japanese (strictly head-final) but also Persian (mixed head-direction) presents the long-before-short tendency
  - → The verbal position has to be taken into account in the effect of relative length on preferential order between verbal complements
  - → Theories solely based on general principles ignoring linguistic parameters would eventually fail cross-linguistic validity
  - → Theories proposing accounts in terms of dependency seems to be more appropriate
  - ❖ However Hawkins's *EIC* principles fails to account for Persian data
- In Persian the relative length plays only a secondary role while the DO type, which depends on the information status of the NP, plays the essential role
  We are currently running a number of experiments to explore the effect of information structure and the relative length independently

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